For example, by varying the shift amount from 1/4 of the FSR, the level difference when the liquid crystal is switched on and off will take on different values depending on the input wavelength, which can be made use of to detect the input wavelength.

Furthermore, in cases where the filter characteristic of an etalon filter employing birefringent crystal is switched by turning the liquid crystal on and off, by selecting a birefringent crystal such that the FSR will take on highly different values with the two filters, the level difference when the liquid crystal is switched on and off will take on different values depending on the input wavelength, which can be made use of to detect the input wavelength.

Furthermore, while in the above embodiment examples, wavelength fluctuation was detected using rearward output light of the LD element 10, one may also split the forward output light and perform intensity monitoring and etalon filter transmitted light monitoring to detect wavelength fluctuation.

We claim:

1. An optical module comprising:

a splitting element operable to split light outputted from a light source;

a first monitoring device operable to detect an intensity of the light split by the splitting element;

a polarization control device operable to switch a polarization state of light outputted from the splitting element in response to a control signal;

a filter device operable to receive light outputted by the

polarization control device, wherein a transmittance characteristic of the filter device changes depending on the polarization state of the input light; and

a second monitoring device operable to detect an intensity of light transmitted through the filter device;

wherein a wavelength fluctuation of the light source is detected based on intensity of light detected by the first or second monitoring devices.

2. An optical module as set forth in Claim 1, wherein the filter device comprises an etalon filter which is arranged such that an angle of incidence of input light entering the filter device varies depending on the polarization state of the input light.

3. An optical module as set forth in Claim 1, wherein the filter device comprises an etalon filter including birefringent crystal, and a direction of an optical axis of the birefringent crystal is set such that an index of refraction for the input light entering the filter devices varies depending on the polarization state of the input light.

4. An optical module as set forth in Claim 1, further comprising:

a comparing device operable to compare outputs corresponding to a wavelength of the light source obtained based on intensity of light detected by the first or second monitoring

devices, the comparison occurring while switching the polarization control device; and

wherein the polarization control device is switched such that the output light of the polarization control means assumes a polarization state suitable for detecting wavelength fluctuation of the light source.

5. An optical module as set forth in Claim 4, wherein the filter device comprises an etalon filter which is arranged such that an angle of incidence of input light entering the filter device varies depending on the polarization state of the input light.

6. An optical module as set forth in Claim 4, wherein the filter device comprises an etalon filter including birefringent crystal, and a direction of an optical axis of the birefringent crystal is set such that an index of refraction for the input light entering the filter devices varies depending on the polarization state of the input light.